



HI, SUPER-FRIENDS FANS! HAVE YOU EVER WONDERED JUST **HOW** A TV CARTOON SERIES IS CREATED, SOLD, PRODUCED, AND DELIVERED TO A NETWORK FOR SCHEDULED NATIONAL BROADCASTING RIGHT INTO YOUR HOME TV SET? WELL, **NATIONAL COMICS** REQUESTED THAT **I** (HAVING WORKED EXTENSIVELY IN ANIMATION AND COMICS) TELL THE STORY OF ONE MEDIUM WITH THE OTHER — TOO BROAD A SUBJECT FOR THE PAGES ALLOTTED ME HERE — BUT **TRY I WILL!**

SO, HERE IS THE **HOW** AND THE **WHY** OF ANIMATED..

TV CARTOONS

"... **THE COMIC STRIPS THAT MOVE!**"

by ALEX TOTH

and... BOB FOSTER

ANIMATION AND COMIC STRIPS EMPLOY 'PICTURES' — DRAWINGS — IN SEQUENCE, TO **TELL A STORY!**

THUS, BOTH MEDIUMS REQUIRE WRITERS AND ARTISTS TO WORK TOGETHER AS THEY CREATE NEW HEROES, HEROINES, 'BACKUP' CHARACTERS, VILLAINS, SETTINGS, LOCALES, NOVEL NEW GADGETS AND MACHINES, etc., IN THE INITIAL STAGES OF DEVELOPMENT — AS WELL AS LATER, FOR EACH NEW EPISODE IN THE SERIES! BUT **FIRST** COMES THE **ORIGINAL IDEA!**



ITS SOURCE MAY BE THE STUDIO'S PRESIDENT, AND/OR CREATIVE DIRECTOR, OR BORN OUT OF RAP SESSIONS WITH PRODUCER/WRITER TEAMS ON STAFF!

ARTISTS, LIKE ME, OFTEN JOIN IN TO VISUALIZE AND GIVE FORM TO THEIR THOUGHTS AS WELL AS OUR OWN, IN LONG 'GIVE AND TAKE' CONFERENCES!

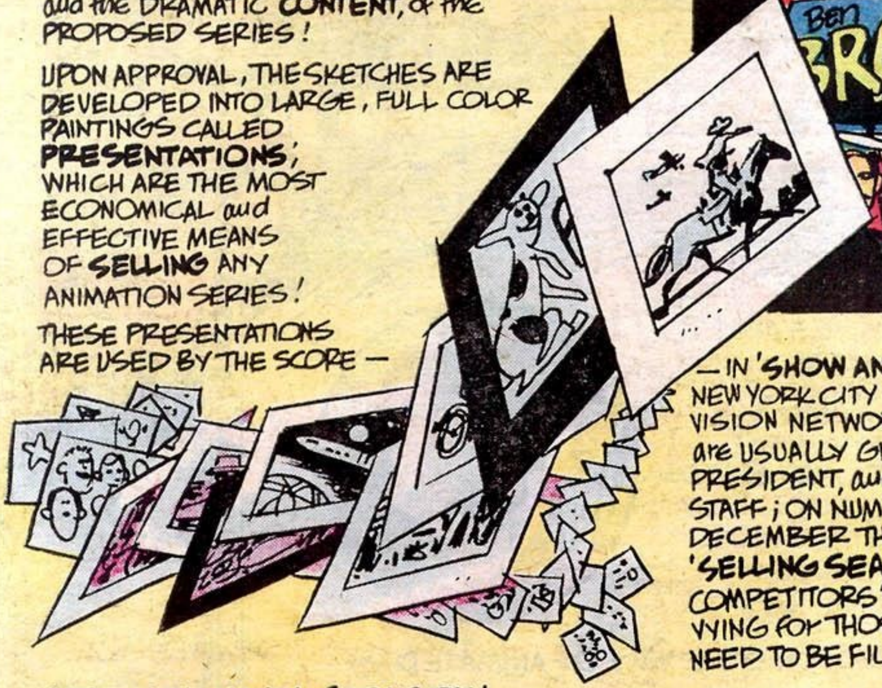
ONCE THE CONCEPT IS SET DOWN AND TYPED UP, AND APPROVED; THE ARTIST'S JOB IS TO DESIGN FACES, FIGURES, AND COSTUMES OF EACH 'LEAD' CHARACTER FOR APPROVAL!



ONCE THESE VISUAL ELEMENTS ARE '**SET**', SKETCHES OF 'ACTION SCENES' ARE DRAWN WHICH WILL BEST DISPLAY HERO/HEROINE, and the DRAMATIC **CONTENT** of the PROPOSED SERIES!

UPON APPROVAL, THE SKETCHES ARE DEVELOPED INTO LARGE, FULL COLOR PAINTINGS CALLED **PRESENTATIONS**; WHICH ARE THE MOST ECONOMICAL and EFFECTIVE MEANS OF **SELLING** ANY ANIMATION SERIES!





THESE PRESENTATIONS ARE USED BY THE SCORE —

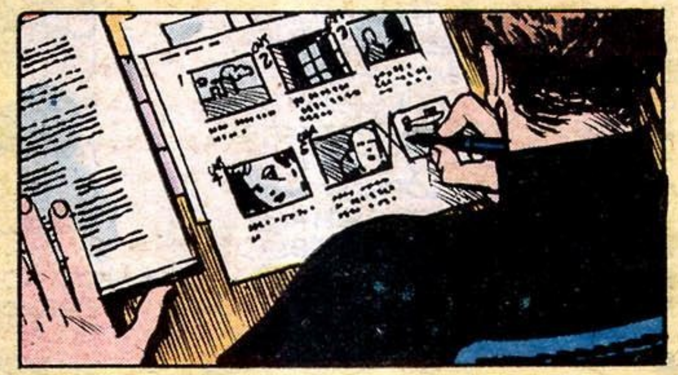
— IN '**SHOW AND SELL**' SALES MEETINGS HELD IN the NEW YORK CITY OFFICES OF ALL THREE MAJOR TELEVISION NETWORKS' PROGRAMMING EXECUTIVES, and are USUALLY GIVEN by the ORIGINATING STUDIO'S PRESIDENT, and/or HIS TOP CREATIVE/PRODUCING STAFF; ON NUMEROUS SALES TRIPS THERE BETWEEN DECEMBER THROUGH MARCH OF EACH YEAR — THE '**SELLING SEASON**'! A TIME WHEN ALL OTHER COMPETITORS' STUDIOS are DOING THE SAME — VYING for THOSE VERY FEW HOURS OF TV TIME that NEED TO BE FILLED WITH **NEW PRODUCT**!

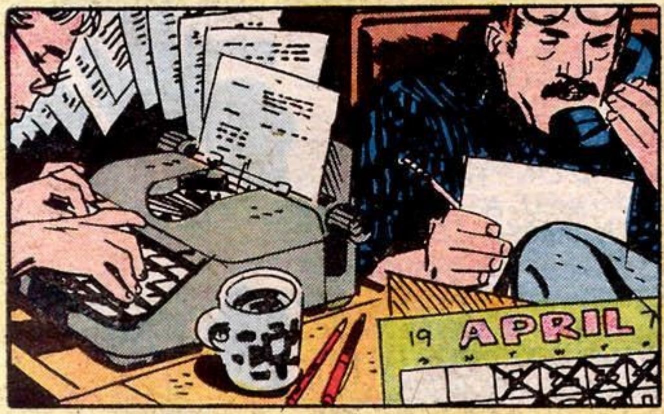
APRIL IS THE **MONTH OF DECISION**!

THE **DEADLINE**, AS IT WERE, for THE NETWORKS TO CHOOSE from AMONG the SCORES of NEW SERIES that HAVE BEEN PRESENTED TO THEM DURING the LAST FOUR MONTHS — and THEIR CHOICES are FORMALLY ANNOUNCED! CONTRACT TERMS are DISCUSSED, REVISED, ADJUSTED, APPROVED; and WHATEVER CHANGES, DELETIONS, OR ADDITIONS the NETWORK OFFICIALS DEEM NECESSARY, IN THE SERIES' STORY-LINE, CHARACTERS, OR STYLING — are ALL AGREED UPON, by BOTH PRODUCING STUDIO and NETWORK — 'SELLER and BUYER'!

CONTRACTS are DRAWN UP and SIGNED by BOTH PARTIES and/or THEIR LEGAL REPRESENTATIVES! INCLUDED IN THESE AGREEMENTS are SCHEDULES for the SERIES' **AIR DATES**' (ACTUAL BROADCASTING DATES) and the '**DELIVERY DATES**' (of EACH WEEKLY EPISODE'S COMPLETED FILM, 'IN THE CAN', TO BE DELIVERED TO the NETWORK'S NEW YORK CITY HEADQUARTERS) — FOR the **NEW FALL SEASON'S AIRING** WHICH BEGINS the FIRST WEEK IN **SEPTEMBER**! **A VERY FEW MONTHS AWAY**!

THE STUDIO SNAPS INTO **HIGH GEAR** AT ONCE, SINCE THE MOOD OF EVERYONE IS '**WE'RE LATE BEFORE WE START!**' WRITERS, SCRIPT SUPERVISORS and EDITORS, THEIR PRODUCTION SECRETARIES and TYPISTS, et al, ARE CALLED, INTERVIEWED, HIRED, and ASSIGNED THEIR DUTIES and SCHEDULES for EPISODE SCRIPTS! PRODUCTION MEETINGS, and STORY/SCRIPT CONFERENCES are HELD! WORKING PRODUCTION SCRIPTS are BEGUN AFTER APPROVAL OF 'OUTLINES' —





EACH SCRIPT IS THEN FORWARDED TO THE NETWORK'S '**CONTINUITY ACCEPTANCE DEPARTMENT**' for ITS APPROVAL, and SUGGESTIONS for CHANGES, DELETIONS, etc., TO GUARANTEE 'GOOD TASTE' and 'WHOLESOME' CHARACTER TO the MATERIAL, WHICH WILL BE TELEVISED FOR A JUVENILE AUDIENCE!

THESE SUGGESTIONS are ACTED UPON by the STUDIO BEFORE the FINAL VERSION OF the SCRIPT CAN BE GIVEN OVER TO a KEY **STORYBOARD** MAN (ARTIST) WHOSE JOB IT IS TO TRANSPOSE the TYPEWRITTEN SCRIPT INTO ITS **FIRST GRAPHIC FORM**!

(2)

THE PRODUCTION STORYBOARD IS OF CRITICAL IMPORTANCE TO EVERY STAGE OF PRODUCTION IN EACH AND EVERY DEPARTMENT OF THE STUDIO!

FOR WHENEVER **ANY QUESTION** ARISES ABOUT AN EPISODE'S **GRAPHIC CONTINUITY, DIALOGUE, OR BASIC 'MECHANICS'**, THE CRY IS: "**GET THE 'BOARD!**"... WHEREIN **THE ANSWER** CAN BE **FOUND**, and the NECESSARY CORRECTIONS CAN BE MADE!

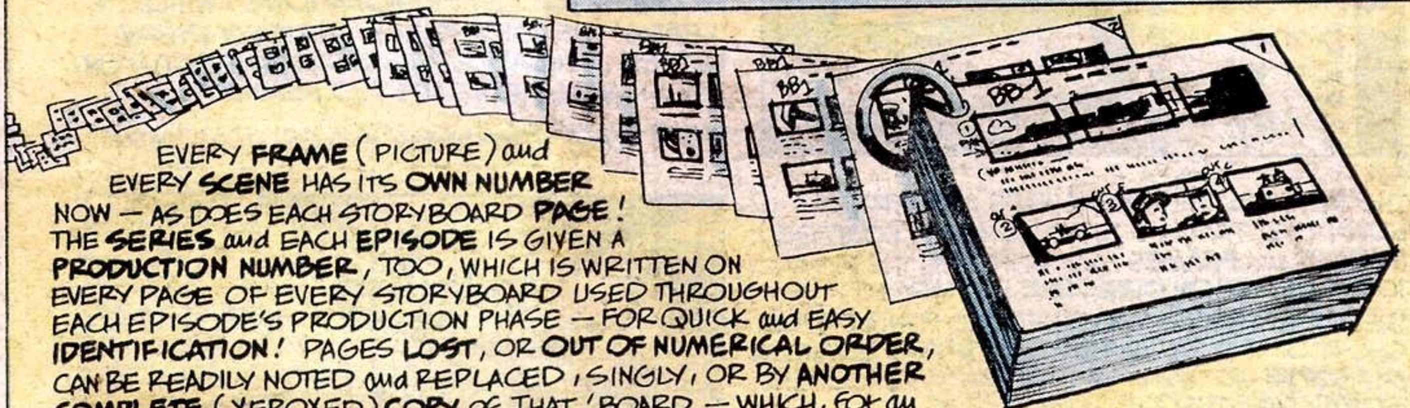
THE STORYBOARD IS A **BLUEPRINT**, OR **FOUNDATION**, UPON WHICH AN ENTIRE FILM IS **'CONSTRUCTED'**, AS **YOU** WILL **SEE**, ON LATER PAGES!

THE STORYBOARD HAS BEEN USED AS A FILM-MAKING TOOL BY **'LIVE ACTION' DIRECTORS** THROUGH THE YEARS: by **HITCHCOCK, DAVES, TASHLIN, ROBSON, KRAMER, CULP, and EISENSTEIN** — and EXTENSIVELY, by **WALT DISNEY STUDIO'S** FEATURE PRODUCTION STAFFS, AS A PRACTICAL, EFFICIENT, and COST-CUTTING DEVICE! MOTTO...

PLANNING FOR **MOVEMENT** OF CHARACTERS, SCENES, **AND THE CAMERA**, IN A STORYBOARD by the **'BOARD MAN'** DEMANDS THAT HE BE **SKILLED** IN 'BREAKING DOWN' THE SCRIPT INTO **NUMBERED SCENES**, and COUPLING **DIALOGUE** OR NARRATION WITH **WELL-STAGED 'SHOTS'** — **COMPOSING** THEM WITH AN EYE FOR **'ECONOMY'** — and with a **'NUTS and BOLTS' SAVVY** AS TO **WHAT** THE ANIMATION **CAMERA CAN** and **CANNOT DO**—! IT IS HERE, IN THE 'BOARDING' STAGE, that the SCRIPT'S OWN **WEAKNESSES** and **ERRORS**, RE **CONTINUITY**, are FOUND OUT and **CORRECTED**! FRAME BY FRAME!

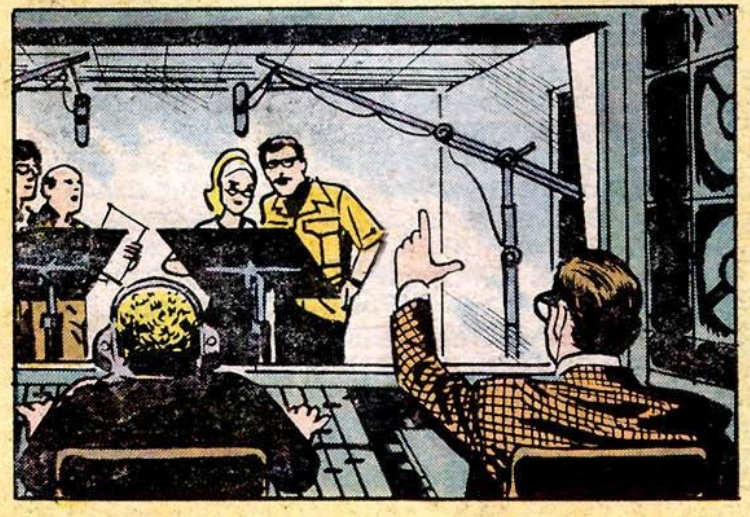


"...**IF IT DOESN'T WORK ON PAPER, IT WON'T WORK ON FILM!**"



EVERY **FRAME** (PICTURE) and EVERY **SCENE** HAS ITS **OWN NUMBER** NOW — AS DOES EACH STORYBOARD **PAGE**! THE **SERIES** and EACH **EPISODE** IS GIVEN A **PRODUCTION NUMBER**, TOO, WHICH IS WRITTEN ON EVERY PAGE OF EVERY STORYBOARD USED THROUGHOUT EACH EPISODE'S PRODUCTION PHASE — FOR QUICK and EASY **IDENTIFICATION**! PAGES **LOST**, OR **OUT OF NUMERICAL ORDER**, CAN BE READILY NOTED and REPLACED, SINGLY, OR BY **ANOTHER COMPLETE** (XEROXED) **COPY** of THAT 'BOARD — WHICH, for an **HOUR** PROGRAM, CAN RUN TO WELL **OVER 100 PAGES, 6 FRAMES PER PAGE FORMAT!**

WITH THE 'BOARDING' FINISHED and APPROVED by the NETWORK, IT IS ONCE AGAIN TRANSPOSED, BACK INTO **TYPEWRITTEN SCRIPT FORM** — THIS **NEW, CORRECTED SCRIPT** IS for the EXPRESS USE of **'VOICE ACTORS'** DURING THEIR **RECORDING (TAPING) SESSION** of THAT ENTIRE EPISODE'S **DIALOGUE**! THE ACTORS HAVE, BY THIS TIME, BEEN **'CAST'** (SELECTED) and THEY HAVE **READ** the STORYBOARD, IN WHICH THEY'VE **SEEN** THEIR **CHARACTERS**, and HAVE ALREADY DECIDED ON THE **'VOICES,'** ACCENTS and DIALECTS THEY WILL USE TO **PORTRAY THEM** for **TAPING**!



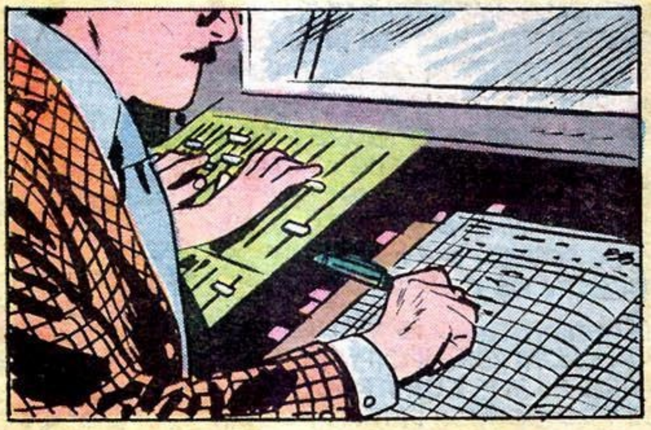
THEY HAVE BEEN REHEARSED and COACHED by the **RECORDING DIRECTOR**! AFTER A **'DRY RUN'**, THE TAPING SESSION BEGINS! THE ACTORS GROUP THEMSELVES AROUND TWO OR MORE **BOOM 'MIKES'** (MICROPHONES) to READ THEIR **'LINES'** of DIALOGUE, WHICH ARE 'PIPED' INTO the GLASS-PARTITIONED **SOUND ENGINEER'S 'BOOTH'** WHERE THE **DIRECTOR** LISTENS and WATCHES, GIVING VERBAL and VISUAL **'CUES'** (DIRECTIONS) — WHILE HIGH FIDELITY TAPE RECORDING UNITS **RECORD** the **ACTORS' DIALOGUE ON 1/4" MAGNETIC TAPE!**

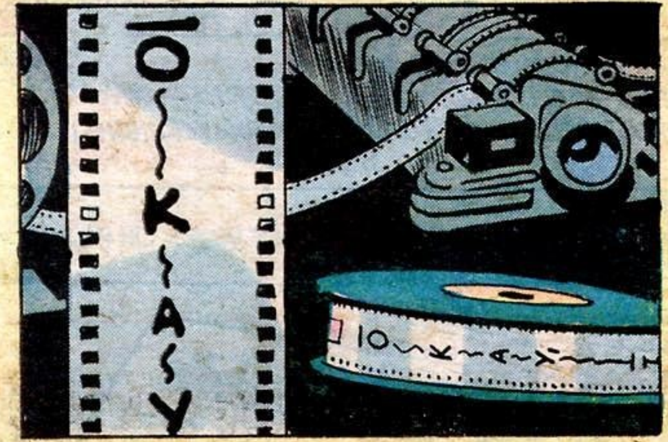
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SINCE SOME '**LINES**' OF DIALOGUE AS SPOKEN BY THE ACTORS REQUIRE MORE THAN JUST ONE '**READING**', EACH REPEATED LINE, OR SPEECH, IS GIVEN ITS OWN '**TAKE**' NUMBER — A TERM ALSO USED IN LIVE ACTION FILMING — !

AS EACH NEW REPETITION OF THE SAME LINE IS READ BY THE ACTOR, IT IS PREFACED BY ITS '**TAKE**' NUMBER — "TAKE **ONE** ..." "TAKE **TWO**..." etc, etc...

THE **RECORDING DIRECTOR** KEEPS TRACK OF EACH 'TAKE' IN HIS **RECORDING 'LOG'**, and HE MARKS DOWN WHICH ONES ARE '**GOOD**' (TO BE USED) and WHICH ONES ARE **NOT**, OR '**N.G**'! THE TAPE'S **EDITING** WILL BE **GUIDED** BY THIS **LOG**!





ONCE **EDITED**, THE 1/4" INCH MAGNETIC TAPE RECORDING IS **TRANSFERRED** (**RE**-RECORDED) ONTO **35MM DOUBLE-PERFORATED MAGNETIC FILM STOCK** — WHICH LOOKS LIKE **BLANK** MOTION PICTURE FILM — AND IS CALLED A **35MM MAG'TRACK**!

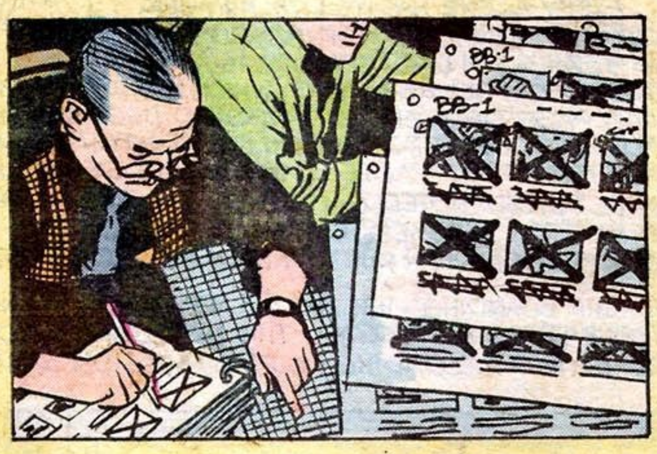
THIS IS GIVEN TO A '**TRACK READER**', WHO RUNS IT THROUGH A MACHINE CALLED A '**SYNCHRONIZER**', WHICH **COUNTS** EACH **FRAME** SPACE (BY **PERFORATIONS**) WHILE HE '**READS**' THE **VOICE TRACK**, **WRITING** EVERY **LETTER**, **SYLLABLE**, and **WORD**, **DIRECTLY ON THE FILM AS HE READS AND HEARS IT**!

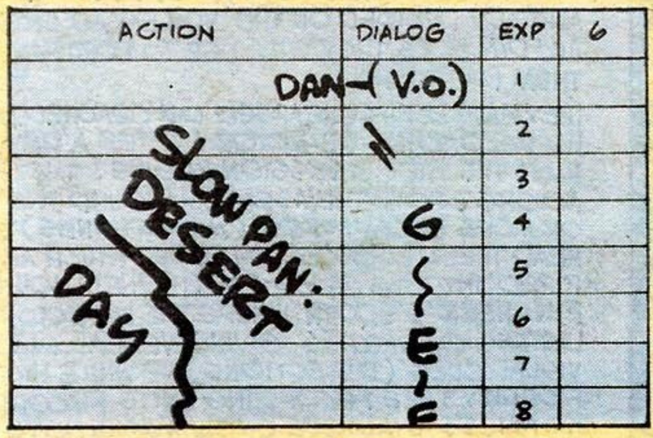
THEIR EXACT 'TRANSFER' IS A CRITICAL 'MUST'!

THE '**READER**' THEN **MEASURES** AND **WRITES DOWN** THE **TRACK'S EXACT LENGTH** ('**FOOTAGE**') BY **FEET** and **FRAMES**, and REPORTS THE FIGURE TO THE **ANIMATION DIRECTOR** in CHARGE!

BECAUSE '**TRACKS**' are OFTEN **TOO LONG** OR **TOO SHORT** OF THE **REQUIRED LENGTH**, THE **ANIMATION DIRECTOR** WORKS WITH THE '**TRACK READER**' IN '**EDITING**' THE TRACK!

ADDING TO, OR **CUTTING FROM** ITS '**FOOTAGE**', THE **DIRECTOR** '**MARKS**' THE **STORYBOARD** FOR NEEDED **ADDITIONAL** SCENES, OR **DELETED** SCENES — SO THAT '**PICTURE**' CONTENT WILL '**MATCH**', **FRAME by FRAME**, THE '**TRACK**' NOW BEING **CUT** and **SPLICED** TO **CORRECT LENGTH**!



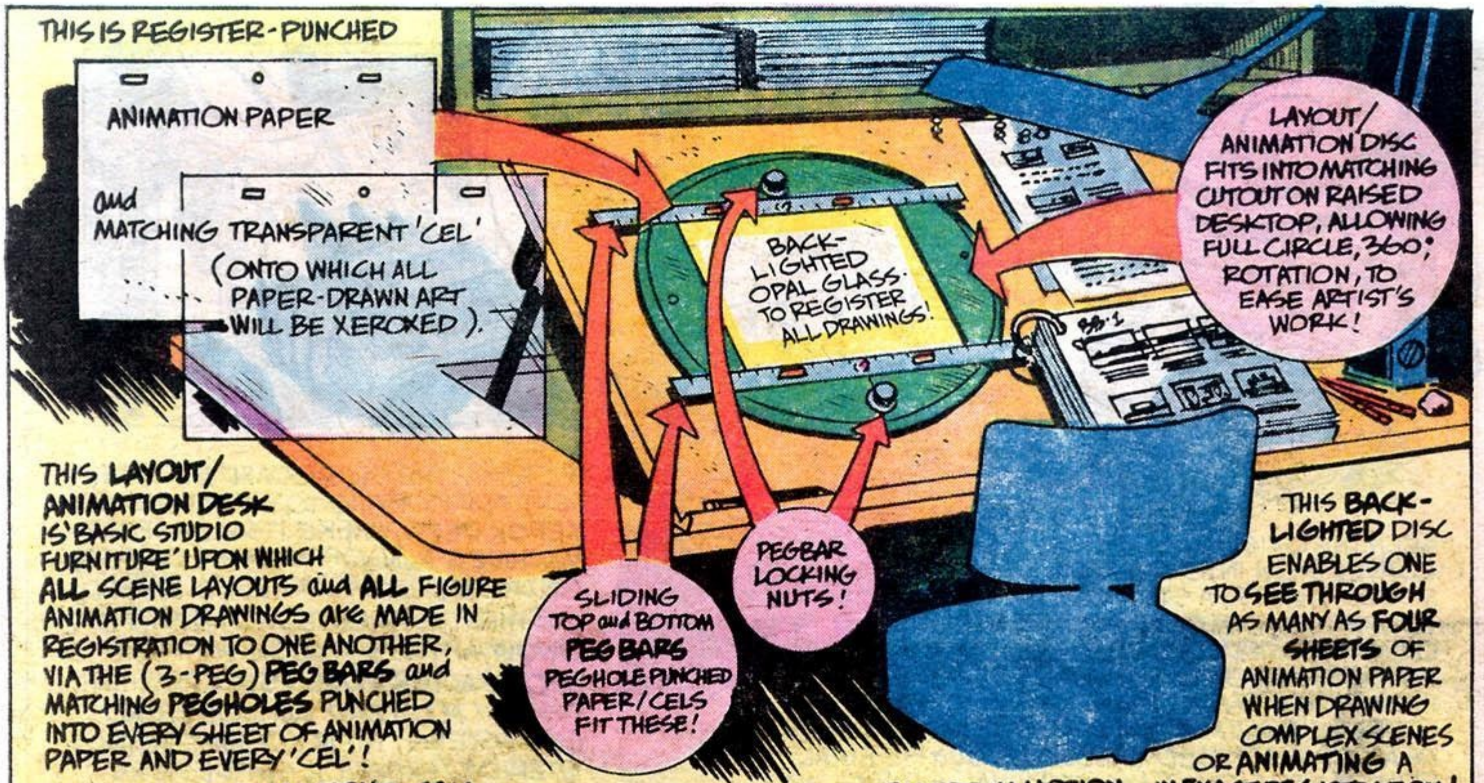


USING LARGE PADS OF LINE-PRINTED PAPER CALLED '**EXPOSURE SHEETS**', THE '**TRACK READER**' **WRITES DOWN**, ON THESE **NUMBERED** SHEETS, **EVERY LETTER** and **SYLLABLE** of **EVERY WORD** of the **35MM MAG'TRACK**, ON THE **EXACT FRAME LINE** (EACH OF WHICH CORRESPONDS TO ONE FRAME OF FILM) WORD BY WORD, UNTIL THE **ENTIRE WORDAGE** of the **VOICE TRACK IS TRANSCRIBED** ON THESE **EXPOSURE SHEETS**!

INTERSPERSED **BETWEEN** DIALOGUE SCENES ARE MANY LONG GAPS OF **SILENCE**! THESE WILL **LATER** BE '**FILLED**' WITH **SEPARATELY RECORDED MIXED MUSICAL** and **SOUND EFFECTS** AND/OR **SILENT ACTION** '**PICTURE**' **SCENES**, AS REQUIRED BY THE **STORYBOARD'S CONTINUITY**!

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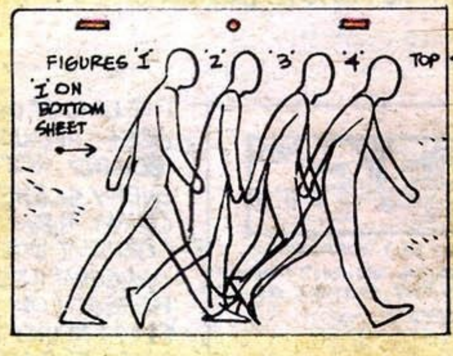

AT THIS POINT...
35MM MAG TRACK BB1
BB-1
BB1
BB1 MODEL SHEET 1
BEN BRAND
THE ENTIRE EPISODE IS NOW CONTAINED IN FOUR ITEMS: 'TRACK, MODEL SHEETS, STORYBOARD, and EXPOSURE SHEETS!
...WE HAVE SEEN THE ORIGINAL SCRIPT'S CONVERSION INTO CHARACTER MODEL SHEETS, A STORYBOARD, A CORRECTED DIALOGUE SCRIPT, ACTED OUT and RECORDED ONTO 1/4 INCH TAPE, TRANSFERRED ONTO 35MM MAG' FILM for FINAL 'VOICE TRACK,' 'READ' and EDITED for CORRECT 'FOOTAGE' LENGTH, (X) EXPOSURE SHEETS OF ALL TRANSCRIBED DIALOGUE, and the FINAL EDITED VERSION of the ORIGINAL STORYBOARD INTO A PRODUCTION 'BOARD, READY FOR LAYOUT!
BUT FIRST, THE STORYBOARD MUST BE SENT FOR COPYING TO THE STUDIO'S XEROX DEPT., WHERE ITS HIGH SPEED MACHINES RUN-OFF SCORES OF SETS; COLLATED, HOLE-PUNCHED, 'C' RINGED, and THEN DISTRIBUTED TO ALL STAFF LAYOUT ARTISTS — ALONG WITH SETS of CHARACTER MODEL SHEETS, WHICH DISPLAY ALL 'LEAD' and INCIDENTAL CHARACTERS, THEIR COSTUME DETAIL, INTERIOR/EXTERIOR SET DESIGNS, PROPS and GADGETS, to be COPIED CLOSELY by ALL PRODUCTION ARTISTS, FOR THIS, and PERHAPS, OTHER EPISODES!
BG 17
(2 FIELD BG) WORKS WITH: SCENES 24, 27, 31, 34 THRU 38, 40, 79, 80, 95, 96, 99—102
BG 47
(3 FIELD PAN BG) WORKS WITH SCENES: 49, 52, 54, 58, 59 THRU 62, 86, 92.
BG 72
THE LAYOUT DEPT. SUPERVISOR NOW GOES THROUGH THE PRODUCTION 'BOARD, NOTING THE NUMBER OF EVERY SCENE that SHARES a COMMON BACKGROUND WITH OTHER SCENES (INTERIOR OR EXTERIOR) and COMPILES a LIST OF THESE REPEAT (OR 'SAME AS') SCENES, SEPARATING THEM INTO LOTS, EACH OF a KIND, HEADING EACH LOT WITH a SMALL 'THUMBNAIL' SKETCH OF THE 'BG' FOR QUICK VISUAL REFERENCE! HIS LISTS ARE XEROXED and SENT to ALL of HIS LAYOUT ARTISTS, and TO THE BACKGROUND DEPT., FOR FILING and LATER USE WHEN THE ACTUAL BACKGROUNDS WILL BE PAINTED!
BB-1
BG SCENE LISTS
STOCK STOCK
IN OTHER WORDS, IF SCENES: 3, 10, 21, 73, 81, and 117 ALL 'PLAY' IN THE SAME ROOM, OR EXTERIOR AREA, AGAINST THE SAME 'BG'— THEN IT IS PRACTICAL for ONE 'BG' TO 'WORK' IN ALL SIX SCENES! SHIFTING THE CAMERA'S VIEWPOINT OF IT, SCENE to SCENE, TO ADD VARIETY TO IT!
THUS, ONE PARTICULAR 'BG' OF, SAY, A HILLSIDE, CAN BE USED BEHIND A CLOSEUP HEAD, A MEDIUM SHOT OF TWO FIGURES, OF ITSELF, AS IN A FULL SHOT, OR, AS SEEN THROUGH A WINDOW OR DOORWAY—!
THE HIGH COSTS OF STUDIO PRODUCTION NECESSITATE SUCH 'REUSE' ECONOMIES THROUGHOUT THE INDUSTRY! SCRIPTS MUST BE WRITTEN WITH SUCH COST-CUTTING ALTERNATIVES in MIND!
5



THIS **LAYOUT/ANIMATION DESK** IS 'BASIC STUDIO FURNITURE' UPON WHICH **ALL** SCENE LAYOUTS and **ALL** FIGURE ANIMATION DRAWINGS are MADE IN REGISTRATION TO ONE ANOTHER, VIA THE (3-PEG) **PEG BARS** and MATCHING **PEGHOLES** PUNCHED INTO EVERY SHEET OF ANIMATION PAPER AND EVERY 'CEL'!

THIS **BACK-LIGHTED** DISC ENABLES ONE TO **SEE THROUGH** AS MANY AS **FOUR SHEETS** OF ANIMATION PAPER WHEN DRAWING COMPLEX SCENES OR **ANIMATING** A **FIGURE IN MOTION — IN EXACT REGISTRATION**!

THE PRECISION **ALIGNMENT** of **ALL** PRODUCTION ARTWORK — from LAYOUT to ANIMATION, TO BACKGROUND, TO INK and PAINT, TO CAMERA; IS ASSURED by the **PEGS**; THE USE OF WHICH IS **STANDARDIZED** WITHIN THE STUDIO! THERE ARE **THREE** PEG SYSTEMS IN USE TODAY! MOST WIDELY USED IS THE **ACME** — THE **OXBERRY** — AND THE **DISNEY STUDIO'S** VERY **OWN**!

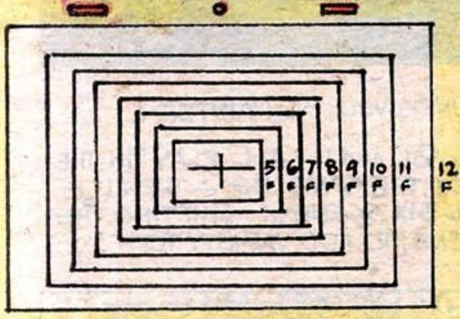


THE **TOLERANCE** OF **PRECISION** IN PEGBAR and PEGHOLE SYSTEMS IS HELD TO **WITHIN THOUSANDTHS** of an **INCH**! WITHOUT IT, CLEAN **SMOOTHNESS** of **MOTION** COULD **NOT** BE ACHIEVED, EITHER ON THE TV SCREEN PROPORTIONS, OR WHEN **MAGNIFIED** TO THE **GIANT PROPORTIONS OF THEATRE SCREENS**!



DRAWINGS 9"X12" ARE PHOTOGRAPHED ONTO 35MM FILM FRAMES APPROXIMATELY 3/4X1 INCH IN SIZE, and THEN MAGNIFIED BY PROJECTION, ABOUT **10 TO 20 TIMES** for TELEVISION, and/OR AS MUCH as **700 TIMES** for THEATRICAL SCREENS of 45'x60' FOOT SIZE!

WHILE COMIC BOOK ARTISTS DRAW FOR PRINT **REDUCTION**, FILM ARTISTS DRAW for GREAT **MAGNIFICATION**!



EACH LAYOUT ARTIST IS ASSIGNED A BLOCK of SCENES TO DRAW (from the 'BOARD') WHICH ARE '**REPEAT**,' OR '**SAME AS**' (LIKE OTHER) SCENES! IF THE 'BOARD' HAS **14** SCENES of 'ACTION' THAT OCCUR IN THE SAME ROOM OR PLACE; THEN, WITH SKILLFUL 'STAGING', THE **FIRST** DRAWN SCENE WILL SERVE **ALL 14**! WITH MINOR VARIATIONS of VIEWPOINT!

THIS IS SIMILAR TO 'LIVE ACTION' FILM CREWS TAKING ADVANTAGE of ONE SET, OR OUTDOOR 'LOCATION', by SHOOTING ALL SCENES TAKING PLACE THERE, 'OUT OF CONTEXT' (OR CONTINUITY) — BUT WITH an EYE to the ECONOMIES REALIZED by THIS METHOD, and PLAIN GOOD SENSE!

A **FULL FRAME** (EDGE TO EDGE) DRAWING of a SCENE IS A '**12 FIELD**'! (12 INCHES ACROSS) BUT MANY SCENES, LIKE CLOSEUPS, ARE EASIER TO DRAW IN SMALLER SCALE — THUS, SAY, IN A **5 FIELD**!

THE LAYOUT ARTIST USES A SET OF PRECISION-MADE **FIELD GUIDES**, WITH **CUTOUT CENTERS** FRAMING FIELDS FROM A MAXIMUM of **12**, DOWN TO A **5** — IN EXACT 3:4 MOTION PICTURE FRAME PROPORTIONS!



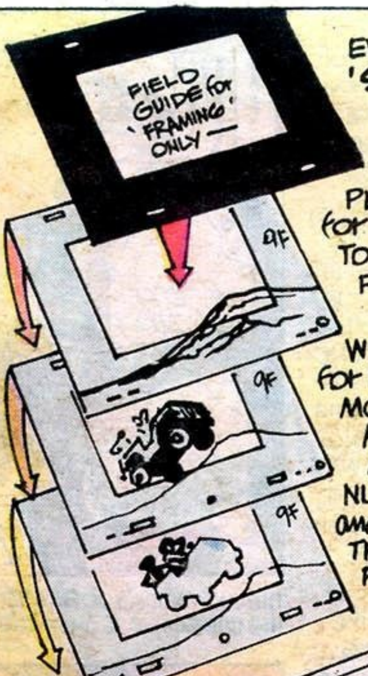
THUS, WITH THESE TOOLS, HE CAN DRAW A **12 FIELD 'MASTER' SHOT** COMPOSITION — '**FRAME IN**' TO A TIGHT '**TWO SHOT**' (TWO FIGURES) IN A **9 FIELD** — and TO A TIGHT **CLOSEUP** WITHIN a **5 FIELD** — IN SEQUENCE, OR NOT! EACH **FIELD** INDICATES EXACTLY WHAT AREA OF A SCENE THE **CAMERA WILL 'SEE' AND 'PHOTOGRAPH'! NO MORE, AND NO LESS!** 'FRAMING', THUSLY, ADDS ECONOMY — and **VARIETY**!

6



CARTOONISTS for PUBLICATION CAN AFFORD TO 'BUSY UP' THEIR ARTWORK WITH FORM-FILLING TECHNIQUE, BODY, FACIAL, and COSTUME DETAIL, and DROP SHADOWS, TO LEND DIMENSION —

BUT FILM ARTISTS CANNOT! FOR EACH LINE DRAWN MUST BE MADE TO **MOVE**, ON **HUNDREDS** OF FINE-LINED, STEP-by-STEP, SEQUENTIAL DRAWINGS, JUST TO COMPLETE **ONE** BIT OF ACTION! AND SO, VIRTUALLY **ALL** NEEDLESS DETAIL LINES ARE STRIPPED AWAY, LEAVING ONLY THE **SIMPLEST** OF **OUTLINES** for COLOR FILL-IN — and, TOO, for **YOUR** EASIER 'READING' of the SCENE on YOUR TV SCREEN!



EVERY SCENE MUST BE '**SEPARATED**' (BROKEN DOWN) INTO FOREGROUND, MIDDLEGROUND and BACKGROUND '**LEVELS**', PLUS ADDITIONAL LEVELS for EACH FIGURE OR OBJECT TO BE **ANIMATED** SEPARATELY FROM THE REST!

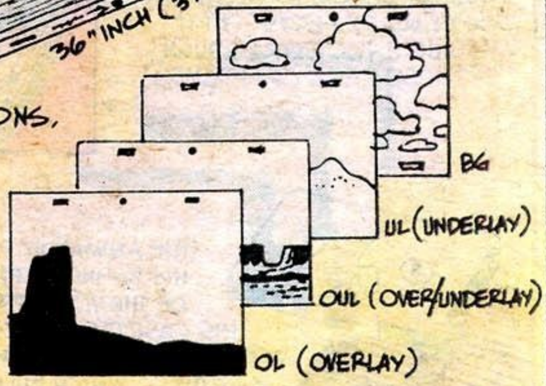
LATER, THESE FIGURES WILL SEPARATE .. FURTHER; for INDIVIDUAL HEAD, EYES, MOUTH, and ARMS ANIMATION! EVERY ONE MUST BE NOTED, DULY NUMBERED, KEPT INTACT, and KEPT TRACK OF, THROUGHOUT PRODUCTION!





WORKING FROM THE STORYBOARD, THE LAYOUT ARTIST 'SETS UP' (FOR THE ANIMATOR) THE FIRST AND LAST POSITIONS (**EXTREMES**) of an ACTION — IF COMPLEX, MIDDLE POSITIONS, TOO, TO CLARIFY THE ACTION TO BE ANIMATED.

YOU CAN SEE, BY NOW, that EACH SCENE IS A 'SANDWICH' OF MANY LEVELS OF DRAWINGS, EACH WITH ITS OWN NUMBER, OR CODED LETTER ABBREVIATION ... '**OL**', '**OUL**', '**UL**', **BG**, etc....



(A) for 'ANIMATION' — WRITTEN ON EVERY DRAWING THAT IS PART of A SCENE'S VISUAL ACTION ... AS THE LAYOUT ARTIST WORKS OUT EACH SCENE'S ACTION, HE WRITES DOWN HIS CHOICE OF FIELD SIZE for the SCENE'S 'FRAMING' — and WRITES INSTRUCTIONS for the ANIMATOR and CAMERAMAN REGARDING 'START and STOP POSITIONS' for the ACTION of ANY FIGURE OR OBJECT MOVING IN, OR THRU, THE FRAME — EVERY MOVE IS ORIENTED TO THE CENTER of the FIELD FRAME, USING TERMS 'NORTH' for ABOVE CENTER, 'SOUTH' for BELOW CENTER, 'EAST' for RIGHT of CENTER, 'WEST' for LEFT of CENTER!



THESE are WRITTEN IN PENCIL (LIGHT BLUE) ON THE DRAWINGS, ALL OF WHICH, WHEN XEROXED, WILL PHOTOGRAPH CLEARLY ONTO THE CLEAR PLASTIC 'CELS' — BUT **NOT** THE NON-PHOTOGRAPHABLE BLUE!

WE'VE TOUCHED ON THE IMPORTANCE OF **MODEL SHEETS**; BUT CONSIDER the FACT that SCORES of LAYOUT ARTISTS and THEIR ASSISTANTS, and ANIMATORS and THEIR ASSISTANTS MUST ALL PRODUCE DRAWINGS of the VERY SAME CHARACTERS — and HAVE THEM **ALL** LOOK ALIKE!

THROUGH EVERY TURN OF A HEAD OR BODY, DURING the ANIMATION of that CHARACTER, HIS IDENTITY MUST BE MAINTAINED and EASILY RECOGNIZABLE! THIS QUALITY of ACCURACY IS CALLED '**KEEPING TO MODEL**' — and IS an EXTREMELY DIFFICULT ONE TO ACHIEVE!

IF WE SEE A JEEP, DRAWN FOR A CLOSE SHOT OF DRIVER and PASSENGER TALKING, SET AGAINST A DESERT and SKY BG THAT IS MOVING, THAT BG IS A '**PAN BG**', for IT 'PANS' PAST CAMERA, CREATING THE EFFECT OF MOVEMENT FOR THE **JEEP**!

PAN BG'S VARY IN WIDTH, DEPENDING ON THE LENGTH OF TIME THEY'LL BE SEEN, and ON HOW SLOW, OR FAST, THE PAN IS TO BE! THE DESERT BG'S PAN WOULD BE SLOW, for a MAN WALKING; FAST, for the JEEP'S SPEED!

(7)

AS SECTIONS; OR BLOCKS, of SCENES ARE COMPLETED by the LAYOUT DEPT., THEY ARE FORWARDED TO THE STUDIO'S ANIMATION DIRECTOR, WHO CHECKS THEM for ACCURACY, CONTINUITY, and COMPLETENESS!

ALL BACKGROUND (BG) LAYOUTS ARE 'SEPARATED' HERE! THE BLACK-PENCILLED 'ORIGINAL' IS SENT TO THE BACKGROUND DEPT. for RENDERING INTO a FULL COLOR PAINTING — and a BLUE-PENCILLED 'TRACING' OF THE ORIGINAL IS KEPT WITH THE REST OF the SCENE'S ART, as a 'RECORD' of that BG, for THE ANIMATOR WHO WILL BE ASSIGNED the SCENE!

VERY OFTEN, IF TIME and the AVAILABLE TALENT ALLOWS, 'SPECIALIST-ANIMATORS' are CALLED IN FOR ANIMATING SCENES of GIRLS, BOYS, BIRDS, FISH, OR ANIMALS — OR the ELEMENTS, LIKE the ROLLING SEAS, FIRE, WIND, RAIN, SMOKE, CLOUDS.. OR OTHER SPECIFIC BITS of 'SPECIAL EFFECTS'.. that REQUIRE the 'EXTRA TOUCH' of THESE RARE CRAFTSMEN!



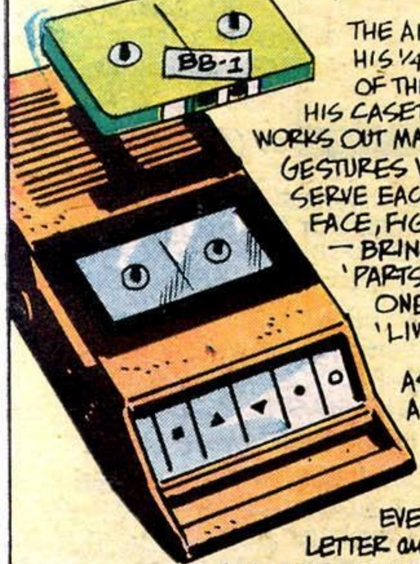
THE ANIMATOR'S JOB IS TO BRING LIFE TO THE CHARACTERS! HIS DIRECTOR IS an INVALUABLE AID in ACHIEVING THAT END!

THE ANIMATION DIRECTOR WORKS OUT THE TIMING OF EACH ACTION and EACH SCENE'S LEVELS ON THE X-SHEETS, and CONVERTING SECONDS, and FRACTIONS THEREOF, INTO FEET and FRAMES OF FILM!

FOR THE ANIMATOR — WITH WHOM HE WILL, OFTEN, 'ACT OUT' THE ACTION, AS THEY BOTH REVIEW THE SCENES in the STORYBOARD, READ THE X-SHEETS, and LISTEN TO THE VOICE TRACK WHICH HAS NOW BEEN PUT INTO CASETTE FORM, for the CASETTE-PLAYERS ASSIGNED TO EVERY ANIMATOR!



YOU CAN LEARN TO ANIMATE — **RIGHT NOW!** USING a SMALL NOTE PAD, and PEN OR PENCIL, PLACE A SMALL DOT ON THE CORNER OF ONE PAGE — DO THE SAME ON THE NEXT PAGE, BUT JUST A BIT FURTHER AWAY FROM THE PAGE CORNER than the FIRST DOT — REPEAT the PROCESS, KEEPING SIZE, and DISTANCE BETWEEN DOTS the SAME; UNTIL YOUR 'MOVING' DOT HAS REACHED the OTHER CORNER OF THE PAD'S PAGES — LEFT TO RIGHT, OR THE REVERSE —! NOW GRIP THE PAGES FIRMLY, and WITH YOUR THUMB, FLIP THEM BOTTOM TO TOP, and SEE THE DOT **MOVE** RIGHT ACROSS THE PAGE(S) AS FAST OR AS SLOW AS YOU WANT IT TO by YOUR 'FLIPPING'!



THE ANIMATOR PLAYS HIS 1/4" INCH TAPE COPY OF THE VOICE TRACK IN HIS CASETTE PLAYER AS HE WORKS OUT MANNERISMS and GESTURES WHICH WILL BEST SERVE EACH CHARACTER'S FACE, FIGURE, and VOICE — BRINGING ALL THESE 'PARTS' TOGETHER INTO ONE DISTINCTIVE and 'LIVING' CHARACTER!

AS HE 'ROUGHS' OUT ALL OF EACH SCENE'S ANIMATION LEVELS, and NUMBERS THEM, HE NOTES EVERY LEVEL'S CODE LETTER and NUMBER on HIS 'X' SHEETS, IN THE ORDER that THEY are to BE PHOTOGRAPHED BY THE STUDIO CAMERA DEPT.!

THE ANIMATOR'S ASSISTANT THEN **'CLEANS UP'** THE 'ROUGHS', REFINING THEM.. **'TO MODEL'**.. for CONSISTENT LIKENESSES THROUGHOUT! COMPLETED, THEY'RE SENT ON TO THE **ANIMATION CHECKING DEPT.!**



ANIMATION CHECKERS 'MATCH UP' ALL BG'S, X'SHEETS, LAYOUTS and ANIMATION ART, ENSURING THAT ALL THESE SEPARATE ITEMS FIT, WORK TOGETHER, and ARE PROPERLY NUMBERED, SCENE by SCENE; FOR 'CAMERA'!



THEN ALL ANIMATION and LAYOUT ART IS SENT to THE **XEROX DEPT.**, WHERE THE CLEAN BLACK PENCIL LINES are TRANSFERRED ONTO TRANSPARENT PLASTIC 'CELS' — AFTER WHICH THEY'RE FORWARDED TO THE **INK and PAINT DEPT.** for APPLICATION of COLOR!

8

THE XEROX PROCESS HAS ALL BUT ELIMINATED THE HANDIWORK OF STUDIO INKERS WHO ARE NOW ONLY RARELY CALLED UPON TO INK CELS, TRACING LINES that ARE TOO DELICATE for the MACHINE PROCESS TO TRANSFER WELL!

COLOR MODEL SHEETS HAVE BEEN PAINTED FOR EVERY CHARACTER and SUBJECT to be SHOWN on the SCREEN, in the PARTICULAR EPISODE, OR THROUGHOUT the SERIES! ALL COLORS are CODE-NUMBERED!



FOLLOWING THE 'CODED' COLORS NOTED ON EACH CHARACTER'S COLOR MODEL SHEETS, THE PAINTERS APPLY ACRYLIC PAINTS (WHICH DRY FAST and REMAIN FLEXIBLE) ON THE BACKS OF the XEROXED CELS! THE CLEAR PLASTIC CEL'S FRONT SURFACE, THUS, NOT ONLY PROTECTS the PAINT, BUT ENHANCES the BRILLIANCE of the COLORS as WELL! THE FRONTS OF CELS are LACQUERED, to PROTECT the XEROX LINES!

COLOR MODEL SHEETS (ON CELS) ENSURE COLOR CONSISTENCY in the PAINTING of ALL CHARACTERS/SUBJECTS! ALLOWANCES in COLOR BRILLIANCE are MADE FOR EACH CEL'S 'LEVEL' WITHIN the 'SANDWICH' of a SCENE'S ART!







ANOTHER IMPORTANT STEP IS the DESIGN of a DISTINCTIVE 'TITLE LOGO' for the SERIES OPENING and CLOSING MINUTES EACH SHOW, and WHICH WILL be USED IN ALL TV and MEDIA ADVERTISING! THIS, PLUS 'END CREDITS' SLIDES, WHICH LIST the NAMES OF ALL THOSE WHO WORKED in PRODUCING the SHOW, ARE CREATED by the 'TITLE DEPT.'!

ALL PAINTED SCENE CEL ART, BACKGROUNDS, and 'X' SHEETS are CHECKED AGAIN, THEN are SENT TO THE CAMERA DEPT., for PHOTOGRAPHING ONTO 35 MM COLOR NEGATIVE FILM, IN THE EXACT SEQUENCE, FIELD SIZES, and CAMERA EFFECTS and MOVEMENTS, SPECIFIED in the 'X' SHEETS PROVIDED!

THE CAMERAMAN 'STACKS' THE PROPER CELS OVER THEIR 'BG' ON THE 'BED', and LOWERS a METAL-FRAMED GLASS 'PLATEN' OVER THE ART, 'FRAMING IT' and PRESSING ALL LEVELS INTO FIRM 'CONTACT' UNDERNEATH! SETTING HIS CAMERA HEIGHT, POSITION, and EXPOSURE — and the PLATEN POSITION — HE 'SHOOTS' the SCENE BY ONE OR TWO FRAMES BEFORE RAISING the PLATEN TOP, ADDING OR MOVING CEL POSITIONS, for the NEXT 'SHOT' of the SCENE! TV ANIMATION IS 'SHOT' 'ON TWOS'.. OR TWO SINGLE-FRAMES OF THE SAME POSITION of the ARTWORK!

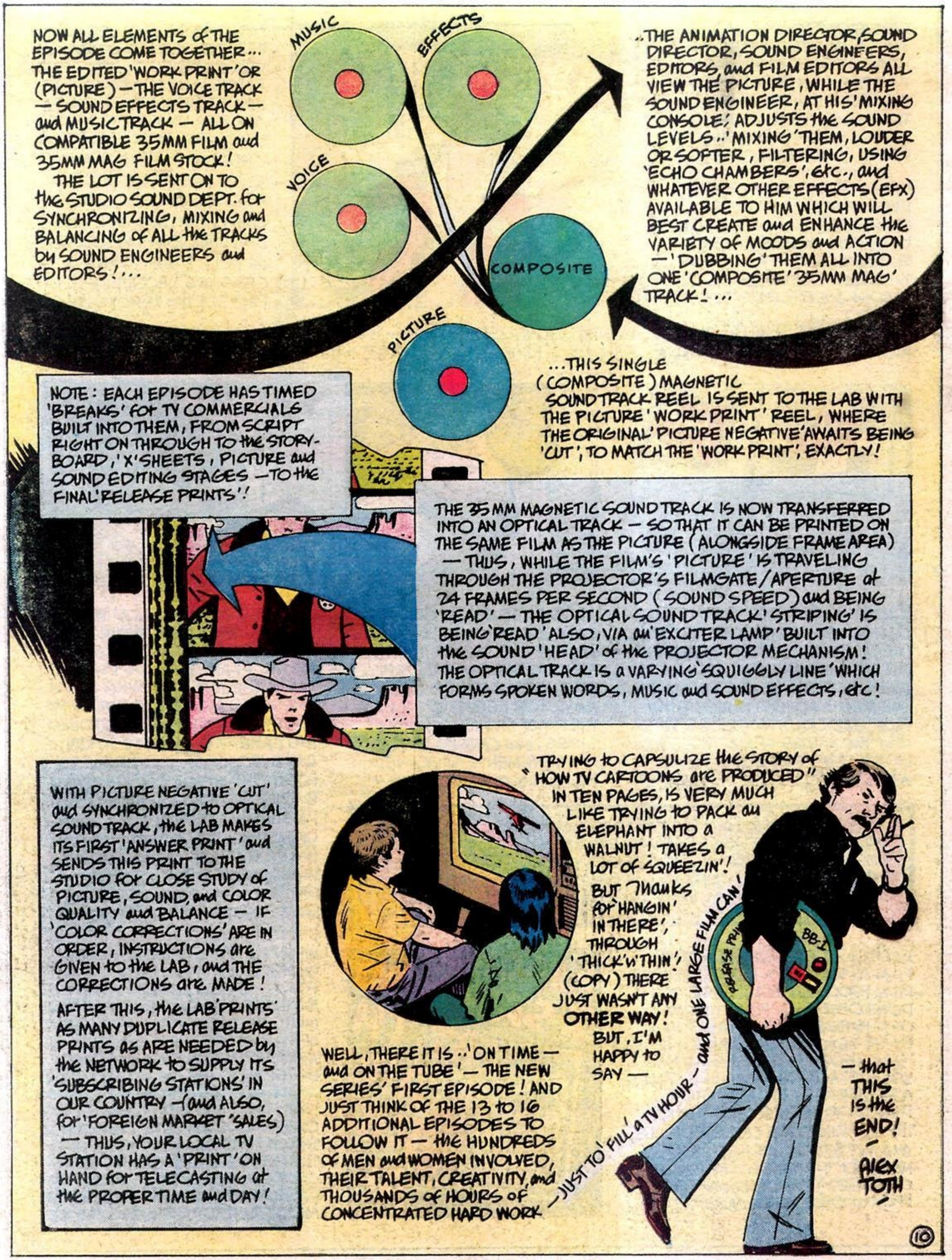
NOTE: CELS, LIKE ALL PLASTIC-BASED FILM PRODUCTS, ARE PRONE TO SCRATCHING and SMUDGING DURING HANDLING, PRIOR TO 'CAMERA', AND SO MUST BE HELD BY THEIR EDGES ONLY, WIPED FREQUENTLY, TO ENSURE CLEAN TOP SURFACES, SHARP LINE and COLOR IMAGES.. for PHOTOGRAPHING by the CAMERA DEPT! THIS IS CRITICAL!

EACH DAY'S 'EXPOSED NEGATIVE' FILM IS SENT TO A LOCAL 24 HOUR FILM PROCESSING LAB, WHERE IT IS DEVELOPED — A 'POSITIVE PRINT' OF IT IS RETURNED TO THE STUDIO BY THE NEXT MORNING, WHEN IT IS SEEN, 'SYNCHED UP' TO the 35MM MAG VOICE TRACK, ON a MACHINE CALLED a 'MOVIOLA', BY the ANIMATION DIRECTOR and HIS CHIEF EDITOR! THESE PRINTS are CALLED 'DAILIES', and ANY ERROR, OR REQUIRED NEED for 'RE-TAKES' (RESHOOTING OF SCENES) IS NOTED, and ACTED UPON at ONCE by the CAMERA DEPT.!



WHEN ALL OF the EPISODE HAS BEEN SHOT, the FILM PROCESSED to 'DAILY' FORM, THE FILM EDITOR ASSEMBLES ALL THESE SEPARATE PIECES of FILM and 'CUTS' THEM INTO a 'WORKPRINT' of the PICTURE! HE THEN SELECTS APPROPRIATE MUSIC and SOUND EFFECTS, TO FIT the MOOD/ACTION OF ALL SCENES, FROM the STUDIO'S OWN MUSIC and 'EFX' LIBRARY, IN ORDER TO COMPLETE THE SOUND TRACK! ALSO, A NEW MUSICAL THEME HAS BEEN COMPOSED, SCORED, RECORDED, FILED and CATALOGUED for THIS NEW SERIES; ANOTHER VITAL PART of the WHOLE!

9


NOW ALL ELEMENTS OF THE EPISODE COME TOGETHER... THE EDITED 'WORK PRINT' OR (PICTURE) — THE VOICE TRACK — SOUND EFFECTS TRACK — AND MUSIC TRACK — ALL ON COMPATIBLE 35MM FILM AND 35MM MAG FILM STOCK!
THE LOT IS SENT ON TO THE STUDIO SOUND DEPT. FOR SYNCHRONIZING, MIXING AND BALANCING OF ALL THE TRACKS BY SOUND ENGINEERS AND EDITORS!...
MUSIC
EFFECTS
VOICE
COMPOSITE
PICTURE
..THE ANIMATION DIRECTOR, SOUND DIRECTOR, SOUND ENGINEERS, EDITORS, AND FILM EDITORS ALL VIEW THE PICTURE, WHILE THE SOUND ENGINEER, AT HIS 'MIXING CONSOLE,' ADJUSTS THE SOUND LEVELS..'MIXING' THEM, LOUDER OR SOFTER, FILTERING, USING 'ECHO CHAMBERS', ETC., AND WHATEVER OTHER EFFECTS (EFX) AVAILABLE TO HIM WHICH WILL BEST CREATE AND ENHANCE THE VARIETY OF MOODS AND ACTION — 'DUBBING' THEM ALL INTO ONE 'COMPOSITE' 35MM MAG' TRACK!...
...THIS SINGLE (COMPOSITE) MAGNETIC SOUND TRACK REEL IS SENT TO THE LAB WITH THE PICTURE 'WORK PRINT' REEL, WHERE THE ORIGINAL 'PICTURE NEGATIVE' AWAITS BEING 'CUT', TO MATCH THE 'WORK PRINT', EXACTLY!
NOTE: EACH EPISODE HAS TIMED 'BREAKS' FOR TV COMMERCIALS BUILT INTO THEM, FROM SCRIPT RIGHT ON THROUGH TO THE STORY-BOARD, 'X' SHEETS, PICTURE AND SOUND EDITING STAGES — TO THE FINAL 'RELEASE PRINTS'!
THE 35MM MAGNETIC SOUND TRACK IS NOW TRANSFERRED INTO AN OPTICAL TRACK — SO THAT IT CAN BE PRINTED ON THE SAME FILM AS THE PICTURE (ALONGSIDE FRAME AREA) — THUS, WHILE THE FILM'S 'PICTURE' IS TRAVELING THROUGH THE PROJECTOR'S FILMGATE/APERTURE AT 24 FRAMES PER SECOND (SOUND SPEED) AND BEING 'READ' — THE OPTICAL SOUND TRACK 'STRIPING' IS BEING 'READ' ALSO, VIA AN 'EXCITER LAMP' BUILT INTO THE SOUND 'HEAD' OF THE PROJECTOR MECHANISM! THE OPTICAL TRACK IS A VARYING 'SQUIGGLY LINE' WHICH FORMS SPOKEN WORDS, MUSIC AND SOUND EFFECTS, ETC!
WITH PICTURE NEGATIVE 'CUT' AND SYNCHRONIZED TO OPTICAL SOUND TRACK, THE LAB MAKES ITS FIRST 'ANSWER PRINT' AND SENDS THIS PRINT TO THE STUDIO FOR CLOSE STUDY OF PICTURE, SOUND, AND COLOR QUALITY AND BALANCE — IF 'COLOR CORRECTIONS' ARE IN ORDER, INSTRUCTIONS ARE GIVEN TO THE LAB, AND THE CORRECTIONS ARE MADE!
AFTER THIS, THE LAB 'PRINTS' AS MANY DUPLICATE RELEASE PRINTS AS ARE NEEDED BY THE NETWORK TO SUPPLY ITS 'SUBSCRIBING STATIONS' IN OUR COUNTRY — (AND ALSO, FOR 'FOREIGN MARKET' SALES) — THUS, YOUR LOCAL TV STATION HAS A 'PRINT' ON HAND FOR TELECASTING AT THE PROPER TIME AND DAY!
WELL, THERE IT IS..'ON TIME — AND ON THE TUBE' — THE NEW SERIES' FIRST EPISODE! AND JUST THINK OF THE 13 TO 16 ADDITIONAL EPISODES TO FOLLOW IT — THE HUNDREDS OF MEN AND WOMEN INVOLVED, THEIR TALENT, CREATIVITY, AND THOUSANDS OF HOURS OF CONCENTRATED HARD WORK — JUST TO 'FILL' A TV HOUR — AND ONE LARGE FILM CAN!
TRYING TO CAPSULIZE THE STORY OF "HOW TV CARTOONS ARE PRODUCED" IN TEN PAGES, IS VERY MUCH LIKE TRYING TO PACK AN ELEPHANT INTO A WALNUT! TAKES A LOT OF SQUEEZIN'!
BUT THANKS FOR 'HANGIN' IN THERE', THROUGH 'THICK 'N' THIN' (COPY) THERE JUST WASN'T ANY OTHER WAY! BUT, I'M HAPPY TO SAY —
RELEASE PRINT
BB-1
— THAT THIS IS THE END!
— ALEX TOTH
10